No.



8300107

## THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE: PRESENTS: SHALL COME;

## Western Plant Breeders, Inc.

Colhereas, there has been presented to the

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IS SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF Eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC PROPERTY IN A PUBLIC REPOSITORY AS PROVUED BY LAW, THE RIGHT TO EXOTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR THE PROPERTY OF THE PROPERTY OF THE PLANT VARIETY PROTECTION ACT. VITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BARLEY

'WestBred Gustoe'

Bu Lestimous Withereot, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this 26th day of April in the year of our Lord one thousand nine hundred and eighty-five.

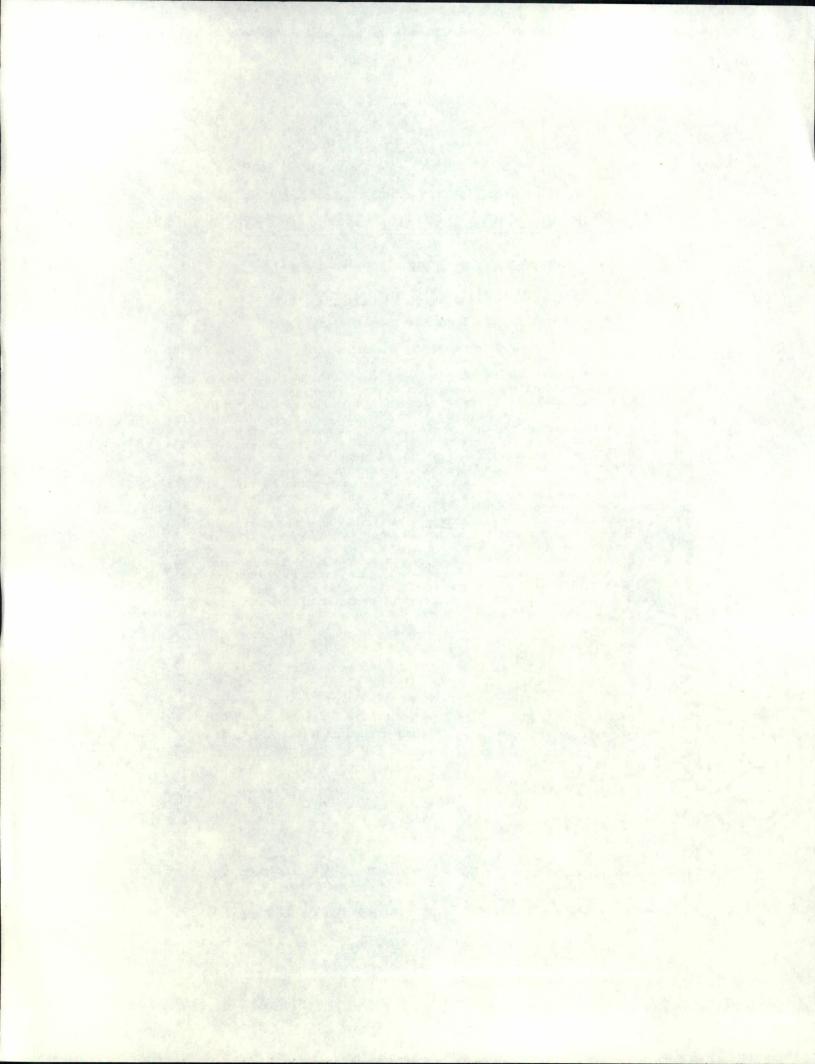
Attest.

Levall HErans

Plant Variety Protection Office Agricultural Marketing Service

ANXXII

Secretary of Agriculture



#### UNITED STATES DEPARTMENT OF AGRICULTURE FORM APPROVED AGRICULTURAL MARKETING SERVICE LIVESTOCK, POULTRY, GRAIN & SEED DIVISION OMB NO 40-R382: No certificate for plant variety protection may APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE be issued unless a completed application form has been received (5 U.S.C. 553). INSTRUCTIONS: See Reverse. TEMPORARY DESIGNATION OF VARIETY 16. VARIETY NAME FOR OFFICIAL USE ONLY PV NUMBER WestBred Gustoe BFP-79-22 8300107 KIND NAME 3. GENUS AND SPECIES NAME FILING DATE TIME MAXAX 4/5/83 :00 Hordeum vulgare P.M. Barley FEE RECEIVED FAMILY NAME (BOTANICAL) S. DATE OF DETERMINATION ,000 4/5/83 500.00 4/1/85 3-1-81 Graminea NAME OF APPLICANT(S) 7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP B. TELEPHONE AREA Code) CODE AND NUMBER Western Plant Breeders, Inc. P.O. Box 1110, 1918 West Van Buren 2/10/8 ESTERN PLANT BREEDERS, INC. Phoenix, Arizona 85001 ATT. MR. RUBERT CA MADYLAND CORPORATION) (602) 257-1223 IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF 10. IF INCORPORATED, GIVE STATE AND 11. DATE OF INCOR-ORGANIZATION: (Corporation, partnership, association, etc.) DATE OF INCORPORATION PORATION Corporation Arizona Dec. 1, 1977 Dec. 1, 1977 NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS: Dale R. Clark or Rob Huntington 85001 P.O. BOX 1409, BOZEMAN, MENTANA P.O. Box 1110 Phoenix, Arizona 3 CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED: par 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.) X 13B. Exhibit B, Novelty Statement. 13C. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.) 13D. Exhibit D, Additional Description of the Variety. 14. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIE SEED? (See Section 83(a). (If "Yes," answer 14B and 14C below.) X YES NO DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE 14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUC-LIMITED AS TO NUMBER OF GENERATIONS? TION BEYOND BREEDER SEED? FOUNDATION REGISTERED CERTIFIED DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? YES NO (If "Yes," give name of countries and dates.) 15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? NO (If "Yes," give name of countries and dates.) DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? X YES ON The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

42 of the Plant Variety Act.

(BIGNATURE OF APPLICANT)

WRE OF APPLICANT)

(6

13 A.

WestBred Gustoe was selected by Western Plant Breeders at Chandler, Arizona in the spring of 1978 as a single  $\mathbf{F}_2$  plant from the resultant  $\mathbf{F}_2$  bulk of the intercrossed short  $\mathbf{F}_2$  plants in the bulk  $\mathbf{F}_2$  of the cross CCXXXII-76 X Arivat. An  $\mathbf{F}_3$  row was grown at Conrad, Montana in the summer of 1978 and a plant selection from this row was grown as an  $\mathbf{F}_4$  plot at Chandler, Arizona in 1979. Six plants were selected from the  $\mathbf{F}_4$  plot and  $\mathbf{F}_5$  plant plots were grown at Conrad, Montana in the summer of 1979. Uniform plant plots were harvested, bulked and given the experimental number BFP-79-22. The resulting  $\mathbf{F}_6$  bulk and the successive  $\mathbf{F}_7$  and  $\mathbf{F}_8$  bulks were yield tested throughout the irrigated areas of Arizona, California, Idaho, Washington, Oregon, Utah, Colorado and Montana in 1980, 1981, and 1982. Plants were selected from the  $\mathbf{F}_7$  bulk in the spring of 1981 and grown as plant plots at Conrad, Montana in the summer of 1981. Uniform plots were harvested and bulked to produce approximatly 1500 lbs of breeders seed. This seed was planted at Roll, Arizona in the fall of 1981 on 30 acres and the resulting production was harvested as Foundation seed and designated WestBred Gustoe.

WestBred Gustoe is a stable and uniform variety in agronomic appearance and performance across several generations and growing conditions. Agronomic data to support stability is presented in the tables.

13 B.

WestBred Gustoe is a semidwarf, six rowed, spring barley, late in maturity with short, strong straw. WestBred Gustoe is most similar in phenotypic appearance to the variety Gus. WestBred Gustoe heads 2-5 days later than Gus and is 7-15 cm. shorter than Gus. The color of the heads of WestBred Gustoe is darker green at flowering than that of Gus due to the slight waxy coating. The above comparisons along with the complete objective description (13C.) show WestBred Gustoe to be a novel variety of spring barley.

Table Ia.

Yield in lbs per acre of WestBred Gustoe and presently grown varieties in Western Plant Breeders trials in the Southwestern United States.

Location	Year	WestBred Gustoe	WestBred 501	Gus	Arivat	Prato	CM-72	Sunbar 409
Phoenix, AZ	1980	6531	6635	5087	4208	6175	4647	6406
	1981	7238	5828	5922	5170	6063	4406	6063
	1982	8615	7744	7840	4792	5711		7841
El Centro, Ca.	1980	6239	5149	4208		5149	5840	4961
	1981	5650	5250	5100	5050	4800	3900	4300
Fresno, Ca.	1981	4730	4235	4180		3850		
Davis, Ca.	1980	6239	5530	5672		5388	3120	
	1981	4290	4510	3410		3575		
King City, Ca.	1982	4659	3942	4250		4710	3686	

Table Ib.

Yield in lbs. per acre of WestBred Gustoe and presently grown varieties in Western Plant Breeders Trials in the Northwestern United States.

Location	<u>Yea</u> r	WestBred Gustoe	WestBred 501	Gus	Steptoe	Kombar
Nampa, Id.	1981	6900	6200	5850	5900	6000
Burley, Id.	1981	7607	7600	6756	5798	
	1982	7475	7014	6810	6656	6912
				12.5		
Tremonton, Ut.	1981	5900	5350	4550	3750	6000
	1982	7219	5939	5786	6195	6554
Conrad, Mt.	1981	6090	5278	5152	6496	
Merrill, Or.	1982	8040	6700	6700	7370	

Table Ic.

Yield in 1bs. per acre of WestBred Gustoe and presently grown varieties in Public Trials.

Location.	Year	WestBred Gustoe	WestBred 501	Gus	Arivat	Prato	CM-72	Steptoe
Univ. of Az.								
Mesa, Az.	1982	6609	6067	6454	5697	6618	5459	
Safford, Az.	1982	5591	5097	5273		4730		
Univ. of Ca.								
Sutter, Co.	1982	5650	4630	6280		4100	3400	
U.C. Davis	1982	5070	3820	4330		5390	3510	
Yolo, Co.	1982	2310	1760	2300		2700	2560	
Merced, Co.	1982	4600	3700	3720		4800	4800	
Kings, Co.	1982	4810	5230	4910		4600	4480	1-2
Tulelake	1982	6830	6110	6960		5540		6580
Colorado St. Univ								
Fort. Collins	1982	5817	4934	5347				6364
Rocky Ford (Irrigated)	1982	4498	3648	3979	-			3787
Rocky Ford (limited Irr.)	1982	4113	3403	3859			_	3955
Oregon St. Univ.	1982	5816	4536	4081				5622
Hermiston								

Plant height (inches) of WestBred Gustoe and presently grown varieties in Western Plant Breeders trials.

Location	Year	WestBred Gustoe	WestBred 501	Gus	Arivat	Prato	Steptoe	Kombar
Phoenix, Az	1980	36	36	41	46	41		
	1981	31	31	37	45	37		
	1982	32	36	38	45	37		
Fresno, Ca	1981	29	32	35		33		
Davis, Ca	1980	28	33	35	1	42		
El Centro, Ca	1980	29	35	35	40	34		
Nampa, Id.	1981	30	33	38			49	37
Burley, Id.	1981	30	31	33		-20	39	
Tremonton, Ut.	1981	31	31	35			44	33
	1982	27	28	28			36	31

Table III

Heading dates of WestBred Gustoe and presently grown varieties in Western Plant Breeders trials.

Location	Year	WestBred Gustoe	WestBred 501	Gus	Arivat	Prato	CM-72	Steptoe
Phoenix, Az.	1980	3/29	3/20	3/24	3/13	3/17	3/1	
	1981	3/28	2/19	3/23	3/15	3/19	3/13	
	1982	3/18	3/12	3/16	3/9	3/11		
Conrad, Mt.	1982	7/10	7/3	7/5		7/4		7/5

Table IV.

Lodging (percentage) of WestBred Gustoe and presently grown varieties in Western Plant Breeders and public trials.

Location	Year	WestBred Gustoe	WestBred 501	Gus	Arivat	Prato	CM-72	Steptoe
Phoenix, Az.	1980	0	0	10	75	75	100	
	1981	0	0	0	15	10	25	
	1982	0	0	0	100	100		
Davis, Ca	1981	0	0	0		100	100	
Fresno, Ca.	1981	0	0	10	120 1	50	80	"
Nampa, Id.	1981	0	0	15				100
Tremonton Ut.	1981	25	0	0				100
	1982	25	0	15				60
Burley, Id.	1981	0	0	0				75
	1982	20	0	0	-			100
Mesa, Az.	1982	0	0	0	36	4	100	

FORM GR-470-5 (11-1-72)

# UNITED STATES DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE GRAIN DIVISION HYATTSVILLE, MARYLAND 20782

EXHIBIT C (Barley)

OBJECTIVE DESCRIPTION OF VARIETY

INSTRUCTIONS: See Reverse. BARLEY (HO	ORDEUM VULGARE)
Western Plant Breeders, Inc.	FOR OFFICIAL USE ONLY
ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)	8300107
P.O. Box 1110 Phoenix, Arizona 85001	VARIETY NAME OR TEMPORARY DESIGNATION
Place the appropriate number that describes the varietal chara	WestBred Gustoe
Place a zero in first box (i.e. 0 8 9 or 0 9 ) when numl  1. GROWTH HABIT:	ber is either 99 or less or 9 or less.
1 - 000 110	
1 = SPRING 2 = FACULTATIVE WINTER 3 = WINTER  2 MATURITY (50% Flowering):	Early Growth: 1 = PROSTRATE 2 = SEMIPROSTRATE 3 = ERECT
3 1 = EARLY (California Mariout) 2 = MIDSEASON (Betzes	3 = LATE (Frontier)
	CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON
15 No. of days Later than 2 5 = PIROLINE 6	= PRIMUS 7 = UNITAN
3, PLANT HEIGHT (From soil level to top of head):	
1 = SEMIDWARF 2 = SHORT (California Mariout) 3 = 1	MEDIUM TALL (Betzes) 4 = TALL (Conquest)
	CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON
0 0 Cm. Taller than X 5 = PIROLINE 6 X= taller th	an none
STEM:	
2 Exertion (Flag to spike at maturity): 3 = 10 - 15 cm.	n. 1 Anthocyanin: 1 = ABSENT 2 = PRESENT
0 6 NO. OF NODES (Originating from node above ground)	
1 = CLOSED 2 = V-SHAPED 3 = OPE 4 = MODIFIED CLOSED OR OPEN	1 = STRAIGHT 2 = SNAKY 3 = OTHER (Specify)
. LEAF:	
Basal leaf sheath (seedling): 1 = GLABROUS 2 = PUBESCENT	Position of flag leaf (at boot stage): 1 = DROOPING 2 = UPRIGHT
Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY 3 = WAXY	2 4 MM. WIDTH (First leaf below flag leaf)
2 6 CM. LENGTH (First leaf below flag leaf)	Anthocyanin in leaf sheath: 1 = ABSENT 2 = PRESENT
HEAD:	
2 Type: 1 = TWO-ROWED 2 = SIX-ROWED	2 Density: 1 = LAX 2 = ERECT (Not dense) 3 = ERECT (Dense)
Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE 4 = OTHER (Specify)	2 Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY 3 = WAXY
Lateral Kernels Overlap: 1 = NONE 2 = AT TIP 3 = 1/4 · 1/2 OF HEAD	Rachis (Hair on edge): 1 = LACKING 2 = FEW 3 = COVERED
GLUME:	
2 Length: 1 = 1/3 OF LEMMA 2 = 1/2 OF LEMMA 3 = MORE THAN 1/2 OF LEMMA	3 Hairs: 1 = NONE 2 = SHORT 3 = LONG
Hair covering: 1 = NONE 2 = RESTRICTED TO MIDDLE	3 = CONFINED TO BAND 4 = COMPLETELY COVERED
3 Awns: 1 = LESS THAN EQUAL TO LENGTH OF GLUMES 3 = MORE THAN EQUAL TO LENGTH OF GLUMES	2 = EQUAL TO LENGTH OF GLUMES
3 Awn Surface: 1 = SMOOTH 2 = SEMISMOOTH 3 = RC	DUGH

O Pro D Co	
830010,	

FORM GR-470-5 (Reverse)	8300107
LEMMA:	
A surm :	TRAL ROWS AWNLESS ON LATERAL ROWS  ETS ON LATERAL ROWS 4 = SHORT (less than equal to length of spike)  DED
Awn Surface: 0 = AWNLESS 1 = SMOOTH 2 =	= SEMISMOOTH 3 = ROUGH
Teeth: 1 = ABSENT 2 = FEW 3 = NUMEROUS	JS
Shape of base: 1 = DEPRESSION 2 = SLIGHT CRE 3 = TRANSVERSE CREASE	EASE 2 Rachilla Hairs: 1 = SHORT 2 = LONG
. STIGMA:	
2 Hairs: 1 = FEW 2 = MANY	
O. SEED:	
Type: 1 = NAKED 2 = COVERED	Hairs on Ventral Furrow: 1 = ABSENT 2 = PRESENT
2 Length: 1 = SHORT (8.0 mm.) 2 = SHORT TO M 4 = MIDLONG TO LONG (9.0 - 10.5 mm.)	MIDLONG (7.5 - 9.0 mm.) 3 = MIDLONG (8.5 - 9.5 mm.) 5 = LONG (10.0 mm.)
Wrinkling of hull: 1 = NAKED 2 = SLIGHTLY W	WRINKLED 3 = SEMIWRINKLED 4 = WRINKLED
Aleurone Color: 1 = COLORLESS (White or Yellow)	2 = BLUE
0 0 PERCENT ABORTIVE	4 5 GMS. PER 1000 SEEDS
1. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant	nt)
O SEPTORIA 2 NET BLOTCH	0 SPOT BLOTCH 1 POWDERY MILDEW
LOOSE SMUT 1 BACTERIAL BLIGH	HT 1 COVERED SMUT 1 FALSE LOOSE SMUT
) STEM RUST 2 LEAF RUST	0 SCAB 2 SCALD
0 AY 0 BSMV	1 BYDV OTHER (Specify)
2. INSECT: (0 = Not tested, 1 = Susceptible 2 = Resistant)	
GREEN BUG TENGLISH GRAIN A	APHID 0 CHINCH BUG 0 ARMYWORM
GRASS HOPPERS O CERIAL LEAF BET	O OTHER (Specify)
HESSIAN FLY RACES O GP O A	0 B 0 C
3. CHEMICAL (0 = Not Tested, 1 = Susceptible, 2 = Resistant	int)
0 DDT 0 OTHER (Specify)	
4. INDICATE WHICH VARIETY MOST CLOSELY RESEMB	
CHARACTER NAME OF VARIETY	CHARACTER NAME OF VARIETY

Leaf color GUS Seedling pigmentation GUS

Leaf carriage GUS

REFERENCES: The following publications may be used as a reference aid for the standardization of character descriptions and terms used in this form:

1. Wiebe, G. A., and D. A. Reid, 1961, Classification of Barley Varieties Grown in the United States and Canada in 1958, Technical Bulletin No. 1224, U.S. Dept. of Agriculture.

Seed size

Coleoptile elongation

- 2. Reid, D. A., and G. A. Wiebe, 1968, Barley: Origin, Botany, Culture, Winter Hardiness, Genetics, Utilization, Pests, Agriculture Handbook No. 338, U.S. Dept. of Agriculture. pp. 61 84.
- 3. Malting Barley Improvement Association, Milwaukee, Wisconsin, 1971, Barley Variety Dictionary.

COLOR: Nickerson's or any recognized color fan may be used to determine color of the described variety.

Gus

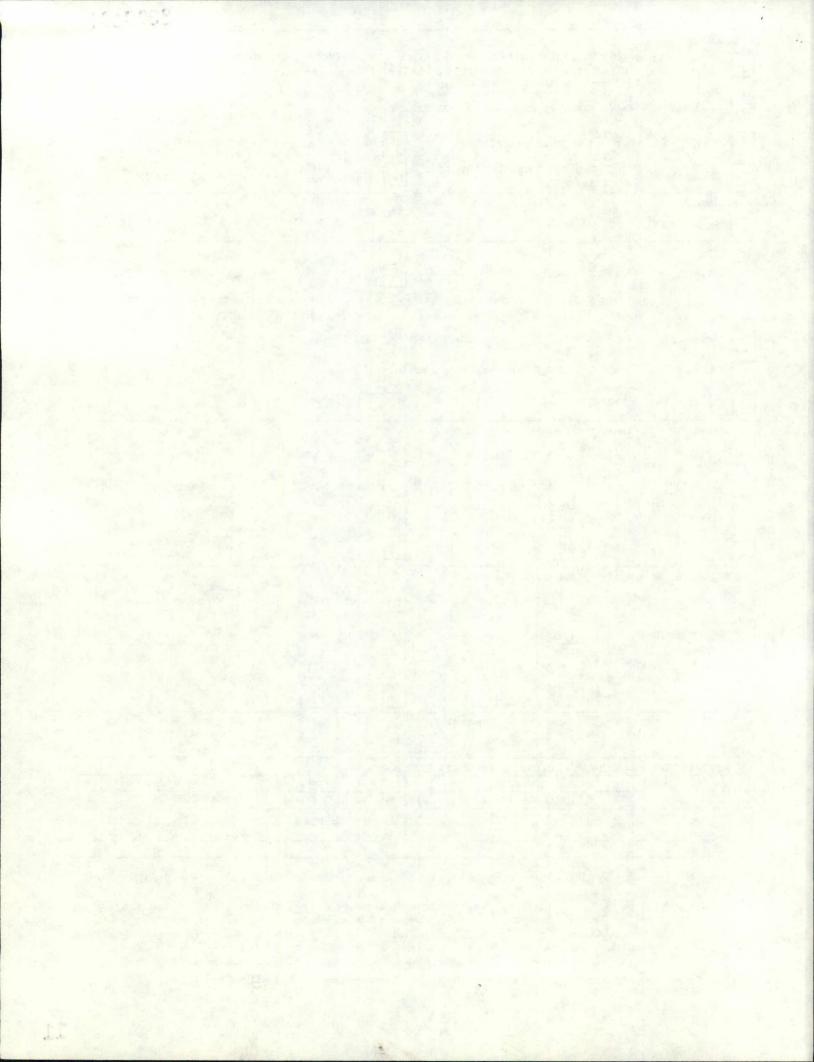
Gus

Plant tillering

Leaf size

WestBred 501

Gus



### ASSIGNMENT

WHEREAS, WESTERN PLANT BREEDERS, INC., an Arizona corporation (a/k/a) WESTERN PLANT BREEDERS), having its principal place of business at Phoenix, Arizona, has adopted, used and is using the following Certificate of Protection which is registered in the Plant Variety Protection Office of the Secretary of Agriculture:

Certificate No. 8300107

WestBred Gustoe

Barley

WHEREAS, WPB ACQUISITION INC., a Maryland corporation, having its principal place of business in Hayward, California, is desirous of acquiring said Plant Variety Protection Certificate; and

WHEREAS, WESTERN PLANT BREEDERS, INC., states that it has title to the above Certificate and that this transfer does not violate any applicable ruling or order of any court or agency of competent jurisdiction.

NOW, THEREFORE, for valuable consideration, receipt of which is hereby acknowledged, WESTERN PLANT BREEDERS, INC. does hereby assign and set over to WPB ACQUISITION INC., all of the right, title and interest of WESTERN PLANT BREEDERS, INC., in and to the variety of barley named:

### "WestBred Gustoe"

together with all goodwill associated with that variety and that name, and together with all rights under and to that Certificate of Plant Variety Protection, No. 8300107, issued by the Secretary of Agriculture of the United States of America on April 26, 1985.

WESTERN PLANT BREEDERS, INC.

Albert E. Carleton, President

On this 30th day of September, 1985, before me, appeared Albert E. Carleton, to me personally known, who, being by me duly sworn, did say that he is the president of WESTERN PLANT BREEDERS, INC., an Arizona corporation, and that the foregoing Assignment is on behalf of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal at my office in Phoenix, Arizona the day and year last above written.

Notary Public

My Commission Expires:

November 3, 1986

DEULINED 8 1985